REMARKS

Applicant respectfully requests reconsideration of this application as amended. Claims 1-52 are pending in the application. Claims 9, 13 and 14 have been amended. Claim 53 has been added. No claims have been canceled.

The Examiner indicated that claims 5-8 and 29-52 are in condition for allowance. Applicant thanks the Examiner and submits that the remainder of the comments are directed to the remaining pending claims.

The Examiner objected to claim 9 due to informalities. Applicant has amended specification and claim 9 to correct informalities. Applicant respectfully requests the Examiner withdraw the objections, and respectfully submits that claims 9-12 are in condition for allowance.

The Examiner rejected claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by Itokawa (U.S. 6,847,736). Applicant respectfully disagrees.

Claim 1 is as follows:

> An apparatus for processing a non-interlaced image, comprising:
>   a wavelet transform unit to perform a two-dimensional discrete wavelet transform of a level higher than or equal to level one on data of the non-interlaced image; and
>   a determination unit to determine a movement speed of an object within the non-interlaced image based on at least values of wavelet coefficients of a 1LH sub-band of wavelet coefficients obtained by the wavelet transform unit.

As set forth above, claim 1 requires a determination unit to determine a movement speed of an object within the non-interlaced image based on at least values of wavelet coefficients of a 1LH sub-band of wavelet coefficients obtained by the wavelet transform unit.

Itokawa discloses performing level-1 DWT processing on interlaced video (i.e., a moving image) frame by frame and field by field, thereafter performing arithmetic processing on the

high-frequency-side subbands of the processed images, and selecting and executing a subsequent

DWT process based on the results of the arithmetic processing (See column 14, lines 29-38).

Regarding independent claim 1, the Examiner asserts on Page 3 of the Office Action:

"Itokawa discloses the 'determination unit' as shown with the

discrimination unit 104 of figure 1. The determination unit determines a

movement speed of the non-interlaced image based on at least values of wavelet

coefficients of the 1LH sub-band of wavelet coefficients. (See for example,

figures 3F and 4, and also column 13, lines 18-33. See also figure 7)."

Applicant disagrees. The "determination unit" of the claimed invention is not disclosed

in the Examiner-cited portion of Itokawa. At column 13, lines 3-47, Itokawa merely discloses

performing level-1 horizontal subband segmentation on a field image and a frame image,

performing coefficient process of high-frequency subband (LH and HH) of the field and frame

images, and computing entropy or signal power values of the subbands of each of the field DWT

process and the frame DWT process in order to select one of the field DWT process and the

frame DWT process based on the comparison of the computed values. That is, the

discrimination unit 104 of FIG. 1 of Itokawa, on which the Examiner relies as alleged disclosure

of the "determination unit" of the present invention, merely selects in step S216, one of field

DWT process and the frame DWT process based on the comparison of the computed entropy or

signal power values of the subbands of each of the field DWT process and the frame DWT

process.

At column 13, lines 28-33, Itokawa discloses:

"In step S216, the computed arithmetic values are compared. If the

arithmetic values of field subbands are smaller than those of frame subbands, the

field DWT process is selected; if the arithmetic values of field subbands are larger than those of frame subbands, the frame DWT process is selected."

Thus, there is no disclosure of determining the movement speed of an object in Itokawa. That is, Itokawa fails to disclose "a determination unit determining a movement speed of an object within the non-interlaced image based on at least values of wavelet coefficients of 1LH sub-band of wavelet coefficients obtained by said wavelet transform unit" of the claimed invention.

For at least the reason set forth above, it is believed that claims 1-4 are allowable over Itokawa.

The Examiner rejected claims 13-28 under 35 U.S.C. § 103(a) as being unpatentable over Itokawa (U.S. 6,847,736) in view of Wang et al (U.S. 6,359,928). Applicant respectfully disagrees.

Claim 13 is as follows:

> An image processing apparatus encoding image data of a non-interlaced image into code data, the non-interlaced image having two successive interlaced images, the image processing apparatus comprising:
> a data reduction unit to reduce an amount of the code data, wherein as a movement speed of an object in the non-interlaced image increases, the data reduction unit decreases an amount to be reduced of part of the code data, where the part of the code data affects reproducibility of an edge part of the non-interlaced image.

Regarding independent claim 13, the Examiner asserts on Page 4 of the Office Action:

"Wang discloses encoding the non-interlaced image by decreasing an amount to be reduced of part of the code data affecting reproducibility of an edge part of the non-interlaced image. Wang does this by using multi-threshold DWT coding. (See column 1, lines 62-64, column 2, lines 45-62, and column 5, line 60 through column 6, line 50)."

Applicant disagrees. There is no disclosure or suggestion in the Examiner-cited portions of Wang that a "data reduction unit decreases an amount to be reduced of part of the code data, where the part of the code data affects reproducibility of an edge part of the non-interlaced image". In particular, according to column 5, line 60 through column 6, line 50 of Wang, where merely an embodiment related to Multi-Threshold Wavelet Coder (MTWC) is disclosed, wavelet transform is performed on an input image, which is a still image or a moving image (video). Wavelet coefficients with the same spectral are grouped together to form a subband. Since no additional grouping of the coefficients is required, the wavelet coefficients are already grouped into separate subbands by the transform itself. The subband having the maximum initial threshold value is selected as the current subband to be quantized. The MTWC selects the initial threshold for each subband based upon the largest absolute value of all wavelet coefficients in that corresponding subband. Quantization is performed based on the selected threshold, and the quantized wavelet coefficients are subjected to entropy coding for encoding.

Thus, Wang fails to disclose the "data reduction unit" of the claimed invention.

The Examiner also asserts on Page 4 of the Office Action:

"Itokawa disclosed 'data reduction unit to reduce an amount of the code data, wherein as a movement speed of an object in the non-interlaced image increases, wherein the data reduction unit decreases an amount to be reduced of part of the code data, the part of the code data affecting reproducibility of an edge part of the non-interlaced image.' (See figures 30A, B, and C)."

However, figures 30A, B, and C of Itokawa are merely "views for explaining problems of a field image" (column 6, lines 54-55 of Itokawa), and the corresponding portion (column 1, lines 46-63) of the description neither discloses nor suggests the claimed feature of the "data reduction unit" of the present invention.

Thus, neither Itokawa nor Wang discloses or suggests the "data reduction unit" of the claimed invention.

For at least the reasons set forth above, Applicant respectfully submits that claims 13-28 are allowable over the combination of Itokawa and Wang.

Accordingly, Applicants respectfully submit that the objections to the claims and the abstract have been overcome by the amendments and the remarks and withdrawal of these rejections is respectfully requested. Applicants submit that Claims 1-52 as amended are in condition for allowance and such action is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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